IN THE CLAIMS

1. (Previously Presented) A computer model for describing a performance of a segmented transmission line having a plurality of segments, each segment having a transfer function, comprising:

(a) means for storing at least one characteristic value the transfer function of a respective segment of the segmented transmission line;

(b) means for storing information relating to at least one algorithm, said algorithm being for determining the effect of a respective characteristic value and sequence of transmission line segments on a performance of the overall segmented transmission line; and

(c) means for adjusting a characteristic value,

whereby a set of characteristic values is defined for respective transmission line segments, having an optimized performance in view of the at least one algorithm.

2. (Original) The model according to claim 1, wherein the characteristic value is a length of a respective transmission line segment.

3. (Original) The model according to claim 1, wherein the at least one algorithm calculates a transfer function of the segmented transmission line.

4.   (Original)   The model according to claim 1, wherein the adjusting means allows adjustment of all characteristic values, the adjustments being based on a determined performance of the segmented transmission line.

5.   (Original)   The model according to claim 1, wherein the segmented transmission line comprises an air-spaced coaxial transmission line adapted for transmitting an RF signal, the performance comprising signal transmission efficiency.

6.   (Original)   The model according to claim 1, wherein a precision of the algorithm exceeds a manufacturing tolerance of the segmented transmission line.

7.   (Original)   The model according to claim 1, further comprising means for outputting a predicted performance of the segmented transmission line based on the respective characteristic values.

8.   (Previously Presented)   The model according to claim 1, wherein the respective characteristic values are non-incrementally distributed across a range.

9.   (Previously Presented)   The model according to claim 1, wherein the respective characteristic values are non-monotonically distributed across a range.

10.   (Currently Amended) A computer implemented method for optimizing the segment characteristics of a segmented transmission line, comprising the steps of

modeling the electrical performance of the segmented transmission line, evaluating the

model for electrical performance, selecting ~~a~~ an optimally ordered set of independently-

selected segment characteristics, based on the evaluation, which meets a set of predefined

optimization criteria, and ~~producing~~ at least one of (1) ~~an~~ producing a computer-

generated output representing the set of segment characteristics, and (2) producing a

segmented transmission line having the set of segment characteristics.

11.   (Original)   The method according to claim 10, wherein the set of

segment characteristics comprises a respective length of each segment.

12.   (Original)   The method according to claim 10, wherein the model is

evaluated to determine a transfer function of the segmented transmission line.

13.   (Original)   The method according to claim 10, wherein the segmented

transmission line comprises an air-spaced coaxial transmission line adapted for

transmitting an RF signal, the predefined optimization criteria comprising signal

transmission efficiency.

14.   (Original)   The method according to claim 10, wherein a precision of

the evaluation exceeds a manufacturing tolerance of the segmented transmission line.

15. (Original)   The method according to claim 10, further comprising outputting a predicted performance of the segmented transmission line based on the respective segment characteristics.

16. (Original)   The method according to claim 10, further comprising the step of producing a set of transmission line segments according to the selected segment characteristics.

17. (Currently Amended) The method according to claim 21 10, wherein a variation in respective segment characteristics is distributed non-incrementally.

18. (Currently Amended) The method according to claim 21 10, wherein a variation in respective segment characteristics is distributed non-monotonically.

19. (Original)   A segmented transmission line, produced according to claim 16, wherein the segment characteristic comprises a respective segment length and the optimization criteria comprises a minimization of worst case VSWR over a radio frequency band.

20. (Original)   A segmented transmission line, produced according to claim 16, wherein the segmented transmission line comprises an air-spaced coaxial transmission line adapted for transmitting an RF signal; the segment characteristic

comprises a respective segment length; and the optimization criteria comprises a minimization of worst case VSWR over a radio frequency band.

21.   (Currently Amended) The ~~method~~ system according to claim 22 ~~10~~, wherein a variation in characteristic values ~~said set~~ of segment characteristic values ~~characteristics~~ is ~~in an optimal order~~ distributed in a manner selected from the group consisting of non-incrementally and non-monotonically.

22.   (Previously Presented)   A computer system for describing a performance of a segmented transmission line having a plurality of segments, each segment having a transfer function, comprising:

(a)   a memory location storing at least one characteristic value the transfer function of a respective segment of the segmented transmission line;

(b)   a memory location storing information relating to at least one algorithm, said algorithm being for determining the effect of a respective characteristic value and sequence of transmission line segments on a performance of the overall segmented transmission line; and

(c)   a processor, executing a program for iteratively adjusting a set of characteristic values for respective transmission line segments to achieve an optimized performance within a predetermined performance constraint with respect to the at least one algorithm.

23.   (Previously Presented)   The system according to claim 22, wherein the characteristic value is a length of a respective transmission line segment.

24.   (Previously Presented)   The system according to claim 22, wherein the performance constraint is selected from the group consisting of a signal transmission efficiency and a VSWR.

25.   (Previously Amended)   The system according to claim 22, wherein the segmented transmission line comprises an air-spaced coaxial transmission line adapted for transmitting an RF signal, the characteristic value being a length of a respective transmission line segment, the optimized respective characteristic values being non-incrementally and non-monotonically distributed across a range.

26.   (Currently Amended) A method for optimizing the segment characteristics of a segmented transmission line, comprising the steps of modeling the electrical performance of the segmented transmission line, evaluating the model for electrical performance, selecting a set of segment characteristics, based on the evaluation, which meets a set of predefined optimization criteria, and producing at least one of an a computer-generated output of the set of segment characteristics and a segmented transmission line having the set of segment characteristics, wherein a variation in respective segment characteristics is distributed non-incrementally.

27.   (Currently Amended) A method for optimizing the segment characteristics

of a segmented transmission line, comprising the steps of modeling the electrical

performance of the segmented transmission line, evaluating the model for electrical

performance, selecting a set of segment characteristics, based on the evaluation, which

meets a set of predefined optimization criteria, and producing at least one of ~~an~~ a

computer-generated output of the set of segment characteristics and a segmented

transmission line having the set of segment characteristics, wherein a variation in

respective segment characteristics is distributed non-monotonically.

28.   (Currently Amended) A method for optimizing the segment characteristics

of a segmented transmission line, comprising the steps of modeling the sequence-

dependent electrical performance of the segmented transmission line, evaluating the

model for electrical performance, selecting a set of segment characteristics and sequence,

based on the evaluation, which meets a set of predefined optimization criteria, and

producing at least one of ~~an~~ a computer-generated output of the set of segment

characteristics and segment sequence and a segmented transmission line having the set of

segment characteristics and segment sequence, wherein said set of segment

characteristics is in an optimal order.

29.   (Currently Amended) A computer implemented method for optimizing the

segment characteristics of a segmented transmission line, comprising the steps of

modeling the electrical performance of the segmented transmission line, iteratively

evaluating the model for electrical performance, selecting a set of sequence dependent

segment characteristics <u>having a variation of respective segment characteristics</u> <u>distributed in a manner selected from the group consisting of non-incrementally and non-</u> <u>monotonically</u>, based on the evaluation, which meets a set of predefined optimization criteria, and ~~producing~~ at least one of ~~an~~ <u>producing a computer-generated</u> output of the set of segment characteristics and <u>producing</u> a segmented transmission line having the set of segment characteristics.

30. (Previously Presented) The method according to claim 29, wherein a variation in respective segment characteristics is distributed non-incrementally.

31. (Previously Presented) The method according to claim 29, wherein a variation in respective segment characteristics is distributed non-monotonically.